

AMENDMENTS TO THE CLAIMS

1-3.(cancelled)

4.(currently amended): ~~The resynchronous~~ A resynchronization control apparatus
for a subscriber communication machine which communicates with an office communication
machine over an existing communication line comprising:

~~according to claim 2,~~

an off-synchronous detector for detecting off-synchronization of communication
with said office communication machine;

a correlation processor for, when said off-synchronization is detected,
correlatively processing received data received over said existing communication line and held
data having been transmitted from said office communication machine in a steady state; and

a resynchronization controller for specifying a synchronous timing based on said
correlative processing of said correlation processor to establish resynchronization in
communication with said office communication machine;

wherein said correlation processor comprises:

a signal holder for holding signal data received from said office communication
machine in steady communication;

a correlation operator for operating correlation between held data held in said
signal holder and received data received after detection of said off-synchronization to detect
received data having high correlation with said held data received in a steady state;

a signal data maximum value holder for holding a maximum value of absolute values of said held data or a value obtained by adding an arbitrary margin value to said maximum value; and

a maximum value determination ~~type~~ correlation operation controller for making said correlation operator carry out said correlation operation in only a time section in which absolute values of received data received after said off-synchronization is detected are not larger than a value held in said signal data maximum value holder.

5.(currently amended): ~~The resynchronous~~ A resynchronization control apparatus for a subscriber communication machine which communicates with an office communication machine over an existing communication line comprising:

~~according to claim 2,~~

an off-synchronous detector for detecting off-synchronization of communication with said office communication machine;

a correlation processor for, when said off-synchronization is detected, correlatively processing received data received over said existing communication line and held data having been transmitted from said office communication machine in a steady state; and

a resynchronization controller for specifying a synchronous timing based on said correlative processing of said correlation processor to establish resynchronization in communication with said office communication machine;

wherein said correlation processor comprises:

a signal holder for holding signal data received from said office communication machine in steady communication;

a correlation operator for operating correlation between held data held in said signal holder and received data received after detection of said off-synchronization to detect received data having high correlation with said held data;

a signal data minimum value holder for holding a minimum value, as a first value, of absolute values of said held data or a second value obtained by multiplying a value, which is obtained by adding an arbitrary margin value to said minimum value, by an arbitrary coefficient, and a result of comparison between one of the first ~~[[or]]~~ and second value and ~~[[the]]~~ an absolute value of said held data; and

a minimum value determination ~~type~~ correlation operation controller for making said correlation operator carry out said correlation operation in only a time section in which absolute values of received data of whole one symbol received after said off-synchronization is detected are larger than said minimum value or a value obtained by multiplying a value, which is obtained by adding an arbitrary margin value to said minimum value, by ~~[[an]]~~ another arbitrary coefficient not larger than said arbitrary coefficient at samples in which ~~[[the]]~~ absolute values of said held data are determined to be larger as results of said comparison.

6.(currently amended): ~~The resynchronous~~ A resynchronization control apparatus for a subscriber communication machine which communicates with an office communication machine over an existing communication line comprising:

~~according to claim 2,~~

an off-synchronous detector for detecting off-synchronization of communication with said office communication machine;

a correlation processor for, when said off-synchronization is detected,
correlatively processing received data received over said existing communication line and held
data having been transmitted from said office communication machine in a steady state; and
a resynchronization controller for specifying a synchronous timing based on said
correlative processing of said correlation processor to establish resynchronization in
communication with said office communication machine;

wherein said correlation processor comprises:

a signal holder for holding signal data received from said office communication
machine in steady communication;

a correlation operator for operating correlation between held data held in said
signal holder and received data received after detection of said off-synchronization to detect
received data having high correlation with said held data;

a frame boundary detector for detecting a frame boundary of said signal data
based on the basis of correlation between signal data of a length of a cyclic prefix attached to
[[the]] a head of received data received after off-synchronization is detected and signal data of a
length of the cyclic prefix attached to [[the]] a tail of the received data same; and

a frame boundary detection type correlation operation controller for making said
correlation operator carry out said correlation operation on a frame specified by a frame
boundary detected by said frame boundary detector.

7.(currently amended): ~~The resynchronous~~ A resynchronization control apparatus
for a subscriber communication machine which communicates with an office communication
machine over an existing communication line comprising:

according to claim 3,

an off-synchronous detector for detecting off-synchronization of communication with said office communication machine;

a correlation processor for, when said off-synchronization is detected, correlatively processing received data received over said existing communication line and held data having been transmitted from said office communication machine in a steady state; and

a resynchronization controller for specifying a synchronous timing based on said correlative processing of said correlation processor to establish resynchronization in communication with said office communication machine;

wherein said correlation processor comprises:

a signal holder for holding signal data received from said office communication machine in steady communication;

a correlation operator for operating correlation between held data held in said signal holder and received data received after detection of said off-synchronization to detect received data having high correlation with said held data;

a signal data maximum value holder for holding a maximum value of absolute values of said held data or a value obtained by adding an arbitrary margin value to said maximum value; and

a maximum value determination type correlation operation controller for making said correlation operator carry out said correlation operation in only a time section in which absolute values of received data received after said off-synchronization is detected are not larger than a value held in said signal data maximum value holder,

wherein said signal holder holds an average value of received data in a particular time section in said steady communication as said held data.

8.(currently amended): ~~The resynchronous~~ A resynchronization control apparatus for a subscriber communication machine which communicates with an office communication machine over an existing communication line comprising:

~~according to claim 3,~~

an off-synchronous detector for detecting off-synchronization of communication with said office communication machine;

a correlation processor for, when said off-synchronization is detected, correlatively processing received data received over said existing communication line and held data having been transmitted from said office communication machine in a steady state; and

a resynchronization controller for specifying a synchronous timing based on said correlative processing of said correlation processor to establish resynchronization in communication with said office communication machine;

wherein said correlation processor comprises:

a signal holder for holding signal data received from said office communication machine in steady communication;

a correlation operator for operating correlation between held data held in said signal holder and received data received after detection of said off-synchronization to detect received data having high correlation with said held data;

a signal data minimum value holder for holding a minimum value, as a first value, of absolute values of said held data or a second value obtained by multiplying a value, which is

obtained by adding an arbitrary margin value to said minimum value, by an arbitrary coefficient, and a result of comparison between the first or second value and ~~[[the]]~~ an absolute value of said held data; and

a minimum value determination ~~type~~ correlation operation controller for making said correlation operator carry out said correlation operation in only a time section in which absolute values of received data of whole one symbol received after said off-synchronization is detected are larger than said minimum value or a value obtained by multiplying a value, which is obtained by adding an arbitrary margin value to said minimum value, by ~~[[an]]~~ another arbitrary coefficient not larger than said arbitrary coefficient at samples in which the absolute values of said held data are determined to be larger as results of said comparison,

wherein said signal holder holds an average value of received data in a particular time section in said steady communication as said held data.

9.(currently amended): ~~The resynchronous~~ A resynchronization control apparatus for a subscriber communication machine which communicates with an office communication machine over an existing communication line comprising:

~~according to claim 3,~~

an off-synchronous detector for detecting off-synchronization of communication with said office communication machine;

a correlation processor for, when said off-synchronization is detected, correlatively processing received data received over said existing communication line and held data having been transmitted from said office communication machine in a steady state; and

a resynchronization controller for specifying a synchronous timing based on said
correlative processing of said correlation processor to establish resynchronization in
communication with said office communication machine;

wherein said correlation processor comprises:

a signal holder for holding signal data received from said office communication
machine in steady communication;

a correlation operator for operating correlation between held data held in said
signal holder and received data received after detection of said off-synchronization to detect
received data having high correlation with said held data;

a frame boundary detector for detecting a frame boundary of said signal data
based on the basis of correlation between signal data of a length of a cyclic prefix attached to
[[the]] a head of received data received after off-synchronization is detected and signal data of a
length of the cyclic prefix attached to [[the]] a tail of the received data same; and

a frame boundary detection ~~type~~ correlation operation controller for making said
correlation operator carry out said correlation operation on a frame specified by a frame
boundary detected by said frame boundary detector,

wherein said signal holder holds an average value of received data in a particular
time section in said steady communication as said held data.

10.(currently amended): ~~The resynchronous~~ A resynchronization control apparatus
for a subscriber communication machine which communicates with an office communication
machine over an existing communication line comprising:

~~according to claim 1,~~

an off-synchronous detector for detecting off-synchronization of communication with said office communication machine;

a correlation processor for, when said off-synchronization is detected, correlatively processing received data received over said existing communication line and held data having been transmitted from said office communication machine; and

a resynchronization controller for specifying a synchronous timing based on said correlative processing of said correlation processor to establish resynchronization in communication with said office communication machine;

wherein said subscriber communication machine comprises an equalizer for adaptively equalizing received data from said office communication machine while updating a predetermined equalization coefficient; and

said ~~resynchronous~~ resynchronization controller makes said equalizer not update said equalization coefficient until said resynchronization is established after said off-synchronization is detected.

11.(currently amended): ~~The resynchronous~~ A resynchronization control apparatus for a subscriber communication machine which communicates with an office communication machine over an existing communication line comprising:

~~according to claim 1,~~

an off-synchronous detector for detecting off-synchronization of communication with said office communication machine;

a correlation processor for, when said off-synchronization is detected,
correlatively processing received data received over said existing communication line and held
data having been transmitted from said office communication machine in a steady state; and
a resynchronization controller for specifying a synchronous timing based on said
correlative processing of said correlation processor to establish resynchronization in
communication with said office communication machine,

wherein said subscriber communication machine comprises a gain amplifier for adaptively amplifying a gain of received data from said office communication machine while updating a predetermined gain coefficient; and

said ~~resynchronous~~ resynchronization controller makes said gain amplifier not update said gain coefficient until said resynchronization is established after said off-synchronization is detected.

12.(currently amended): ~~The resynchronous~~ A resynchronization control apparatus for a subscriber communication machine which communicates with an office communication machine over an existing communication line comprising:

~~according to claim 1,~~

an off-synchronous detector for detecting off-synchronization of communication
with said office communication machine;

a correlation processor for, when said off-synchronization is detected,
correlatively processing received data received over said existing communication line and held
data having been transmitted from said office communication machine in a steady state; and

a resynchronization controller for specifying a synchronous timing based on said
correlative processing of said correlation processor to establish resynchronization in
communication with said office communication machine,

wherein said ~~resynehronous~~ resynchronization controller stops transmission to
said office communication machine until said resynchronization is established when said off-
synchronization is detected by said off-synchronization detector.

13-14.(cancelled)

15.(currently amended): [[The]] A resynchronizing method for a subscriber machine
which communicates with an office communication machine over an existing communication
line comprising the steps of:

~~according to claim 14,~~

an off-synchronization detecting step of detecting off-synchronization with said
office communication machine;

a correlation processing step of correlatively processing, when said off-
synchronization is detected, received data received over said existing communication line and
held data having been transmitted from said office communication machine in a steady state; and

a resynchronization controlling step of specifying a synchronous timing based on
said correlative processing at said correlation processing step to establish resynchronization of
the communication with said office communication machine,

wherein said correlation processing step comprising the steps of:

a signal holding step of holding signal data received from said office communication machine in steady communication; and

a correlation operating step of operating correlation between said held data and received data received after said off-synchronization is detected to detect received data having high correlation with said held data, and

wherein at said correlation operating step, said correlation operation is carried out in only a time section in which absolute values of received data received from said office communication machine are not larger than a maximum value of absolute values of said held data or a value obtained by adding an arbitrary margin value to said maximum value.

16.(currently amended): [[The]] A resynchronizing method for a subscriber communication machine which communicates with an office communication machine over an existing communication line comprising the steps of:

according to claim 14,

an off-synchronization detecting step of detecting off-synchronization with said office communication machine;

a correlation processing step of correlatively processing, when said off-synchronization is detected, received data received over said existing communication line and held data having been transmitted from said office communication machine in a steady state; and

a resynchronization controlling step of specifying a synchronous timing based on said correlative processing at said correlation processing step to establish resynchronization of the communication with said office communication machine,

wherein said correlation processing step comprising the steps of:

a signal holding step of holding signal data received from said office communication machine in steady communication; and
a correlation operating step of operating correlation between said held data and received data received after said off-synchronization is detected to detect received data having high correlation with said held data, and

wherein at said correlation operating step, a minimum value of absolute values of said held data or a value obtained by multiplying a value, which is obtained by adding an arbitrary margin value to said minimum value, by an arbitrary coefficient is compared with a magnitude of an absolute value of said held data, and said correlation operation is carried out in only a time section in which absolute values of received data of whole one symbol received after said off-synchronization is detected are larger than said minimum value or a value obtained by multiplying a value, which is obtained by adding an arbitrary margin value to said minimum value, by [[an]] another arbitrary coefficient not larger than said arbitrary coefficient at samples in which the absolute values of said held data are determined to be larger as results of said comparison.

17.(currently amended): [[The]] A resynchronizing method for a subscriber communication machine which communicates with an office communication machine over an existing communication line comprising the steps of:

~~according to claim 14,~~

an off-synchronization detecting step of detecting off-synchronization with said office communication machine;

a correlation processing step of correlatively processing, when said off-synchronization is detected, received data received over said existing communication line and held data having been transmitted from said office communication machine in a steady state; and

a resynchronization controlling step of specifying a synchronous timing based on said correlative processing at said correlation processing step to establish resynchronization of the communication with said office communication machine,

wherein said correlation processing step comprises the steps of:

a signal holding step of holding signal data received from said office communication machine in steady communication; and

a correlation operating step of operating correlation between said held data and received data received after said off-synchronization is detected to detect received data having high correlation with said held data, and

wherein said correlation processing step comprises a frame boundary detecting step of detecting a frame boundary of received data received from said office communication machine based on the basis of correlation between signal data of a length of a cyclic prefix at [[the]] a head of received data received from said office communication machine after said off-synchronization is detected and a signal data of a length of the cyclic prefix at [[the]] a tail of the received data same; and

at said correlation operating step, said correlation operation is carried out on a frame specified by the frame boundary detected at said frame boundary detecting step.